

Summer 2013 Assignment

Advanced Computer Programming AP (formerly AP Computer Science A)

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(E-mail is delivered to both my personal and SISD account)

Any e-mails that you send me over the summer will be answered within 24 hours. Normally, any Java environment or compiler problems can be solved via a quick search on the internet; please use this resource before e-mailing me with problems other than course issues.

Required text: *How to Think Like a Computer Scientist*, by Allen Downey
<http://greenteapress.com/thinkapjava/> *Free e-book that can be downloaded to your PC*
Barron's AP Computer Science A, 6th Edition by Roselyn Teukolsky.
ISBN-13: 978-1438001524

This book can be purchased online at Amazon.com or Barnes and Noble. The online price is between \$13.00 and \$15.00. I am requiring that you purchase your own.

You will also need a flash drive of at least 4GB in size to carry assignments between class and home. I would also suggest a cloud storage service (such as Google Drive) to use as a backup for your work.

Assignment: There will be two parts to your summer assignment. You must submit Part I BY THE DEADLINE to receive the instructions to complete Part II. Please pay close attention to the submission instructions for both parts. This summer assignment will be a mastery grade, with Part I being worth 40 points and Part II being worth 60 points.

Part I:

A. Understanding the AP requirements

Review (do not print) the College Board Computer Science A Course Description and become familiar with the AP resources available online. This is located at:

<https://apstudent.collegeboard.org/apcourse/ap-computer-science-a>

Download the AP Computer Science GridWorld Case Study materials (Code and Student Manual)

<https://apstudent.collegeboard.org/apcourse/ap-computer-science-a/about-the-exam/gridworld-case-study>

You will not install the code right now; you simply need to download it on to your computer.

B. Installing and testing the Java environment

1. Go to <http://java.sun.com/javase/downloads/index.jsp> to download and install the Java SE Development Kit (JDK) from Sun's website.
 - Download the latest release/update (JDK 7 update 21) (As of 06/01/2013)
 - The download should include the (JRE) Java Runtime Environment
 - Make sure to download the SE (Standard Edition), not the EE (Enterprise Edition)
2. Go to <http://www.eclipse.org/downloads/> to download and install the Eclipse IDE for Java Developers (Integrated Development Environment.)
 - You MUST install the Java SDK before installing Eclipse.

3. Test the installation by creating your first project. Use the Eclipse tutorial found at <http://www.cs.umd.edu/eclipse/>
- When you open Eclipse the first time, it will ask you for a “workspace”. You can use the default provided or change it, but be sure to always use the same workspace. Some students like to use their flash drive as a workspace so they always have their work near both in and out of class – if you do this, remember to back up!
 - You may need to click on the “Workbench” icon to open the Java perspective.
 - Make sure to type the program exactly as shown or it may not work. Be sure to capitalize letters where shown.
 - Use the internet to research how to add comments to Java code and add a comment at the top of your code to include your name and the date.
 - Add your name to the part which is printed out:

```
System.out.println("Hello World yourNameGoesHere");
```

Once you finish your code for Part I, you will either submit the code as an Eclipse file or as a text file and attach to an e-mail addressed to me. In the subject line, please include [APCS] so my filters can get it to the right place. In addition to the code, you will also answer the following questions and submit via Word or Open Document format.

1. How is thinking like a computer scientist similar to the thinking involved in engineering and other sciences?
2. What is the single most important skill for a computer scientist?
3. Describe the differences between a low level and high level language?
4. What are the advantages of programming in a high level language?
5. What does portable mean?
6. What language is used in AP Computer Science?
7. What is a compiler?
8. What is source code?
9. What is debugging?
10. What are your personal goals for this course?

You may use the Barron's book, the AP Computer Science website, or the Downey e-book as sources. Any other resources that you use must be listed at the end of your questions/answers.

DUE DATE FOR PART I: JULY 14, 2013 BY MIDNIGHT

Any assignments turned in after the deadline will receive a 10 point reduction for every day late.

Please contact me with any questions that you may have WELL IN ADVANCE of the due date. I want to remind you once again that you must turn in a Part I to receive the instructions for Part II.

I am here to help you be successful in the course and on the AP exam. It is up to you to let me know if/when you need help.

-Gruhn